

Audit

Report



NAVAL RESEARCH LABORATORY PREPARATION
FOR YEAR 2000

Report No. 98-203

September 23, 1998

Office of the Inspector General
Department of Defense

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Acronym

NRL

Naval Research Laboratory



INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
400 ARMY NAVY DRIVE
ARLINGTON, VIRGINIA 22202

September 21, 1998

**MEMORANDUM FOR ASSISTANT SECRETARY OF THE NAVY (FINANCIAL
MANAGEMENT AND COMPTROLLER)**

**SUBJECT: Audit Report on Naval Research Laboratory Preparation for Year 2000
(Report No. 98-203)**

We are providing this audit report for your information and use. We considered management comments on a draft of this report when preparing the final report.

We received comments from the Office of the Assistant Secretary of the Navy (Research, Development and Acquisition) that were responsive to the finding and the recommendations. Management comments conformed to the requirement of DoD Directive 7650.3; therefore, no additional comments are required.

We appreciate the courtesies extended to the audit staff. For additional information on this report, please contact Mr. Raymond A. Spencer at (703) 604-9071 (DSN 664-9071) or Mr. Roger H. Florence at (703) 604-9067 (DSN 664-9067). See Appendix B for the report distribution. The audit team members are listed inside the back cover.

A handwritten signature in black ink, appearing to read "Robert J. Lieberman", is positioned above the typed name.

**Robert J. Lieberman
Assistant Inspector General
for Auditing**

Office of the Inspector General, DoD

Report No. 98-203

(Project No. 8AB-0030.01)

September 21, 1998

Naval Research Laboratory Preparation for Year 2000

Executive Summary

Introduction. This report is one of a series of reports being issued by the Inspector General, DoD, in accordance with an informal partnership with the Chief Information Officer, DoD, to monitor DoD efforts in addressing the year 2000 computing problem. Information technology systems have typically used two digits to represent the year, such as "98" representing 1998, to conserve electronic data storage and reduce operating costs. With the two-digit format, however, the year 2000 is indistinguishable from 1900. As a result of the ambiguity, computers, associated systems, and application programs that use dates to calculate, compare, and sort could generate incorrect results when working with years after 1999.

Audit Objectives. The overall audit objective was to determine whether the Naval Research Laboratory is adequately preparing its information technology systems to resolve date-processing issues regarding the year 2000 computing problem. Specifically, the audit determined whether the Naval Research Laboratory complied with the Department of the Navy Year 2000 Action Plan.

Audit Results. The Naval Research Laboratory had not developed a comprehensive year 2000 activity plan, developed a comprehensive inventory of information technology systems, examine ongoing research efforts for a potential year 2000 impact, and modified contracts to ensure receipt of only year 2000 compliant products. As a result, the Naval Research Laboratory could not yet ensure that information technology systems and ongoing research efforts will not have year 2000 date-processing problems.

Summary of Recommendations. We recommend that the Commander, Naval Research Laboratory, develop a year 2000 activity plan that includes all areas of the laboratory; develop a comprehensive inventory of all hardware, software, and firmware; develop test, contingency, and cost plans as required by Navy guidance; review all information technology research efforts for the potential year 2000 impact; and review all information technology contracts for inclusion of the year 2000 contract provision.

Management Comments. The Office of the Assistant Secretary of the Navy (Research, Development and Acquisition) concurred with the finding and recommendations. See Part I for a summary of management comments and Part III for the complete text of the comments.

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Part I - Audit Results

Audit Background

Year 2000. The year 2000 problem is the term most often used to describe the potential failure of information technology systems to process or perform date-related functions before, on, or after the turn of the century. The year 2000 problem is rooted in the way that automated information systems record and compute dates. For the past several decades, systems have typically used two digits to represent the year, such as "98" representing 1998, to conserve on electronic data storage and to reduce operating costs. With the two-digit format, however, the year 2000 is indistinguishable from 1900. As a result of the ambiguity, computers and associated systems and application programs that use dates to calculate, compare, and sort could generate incorrect results when working with years following 1999. Calculation of year 2000 dates is further complicated because the year 2000 is a leap year, the first century leap year since 1600, and the computer systems and applications must recognize February 29, 2000, as a valid date.

Because of the potential failure of computers to run or function throughout the Government, the President issued an Executive Order, "Year 2000 Conversion," February 4, 1998, making it policy that Federal agencies ensure that no critical Federal program experiences disruption because of the year 2000 problem and that the head of each agency ensure that efforts to address the year 2000 problem receive the highest priority attention in the agency.

DoD Year 2000 Management Strategy. In his role as the DoD Chief Information Officer, the Acting Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) issued the "DoD Year 2000 Management Plan" (DoD Management Plan) in April 1997. It provides the overall DoD strategy and guidance for inventorying, prioritizing, repairing, or retiring systems, and monitoring progress. The DoD Management Plan states that the DoD Chief Information Officer has overall responsibility for overseeing the DoD solution to the year 2000 problem. Also, it makes the DoD Components responsible for implementing the five-phase year 2000 management process. The "DoD Management Plan, For Signature Draft Version 2.0," June 1998, accelerates the target completion dates for the renovation, validation, and implementation phases. The new target completion date for implementation of mission-critical systems is December 31, 1998.

In a January 20, 1998, memorandum for the heads of executive department and agencies, the Office of Management and Budget established a new target date of March 1999 for implementing all corrective actions to all systems. The new target completion dates are September 1998 for the renovation phase and January 1999 for the validation phase.

The Secretary of Defense issued the memorandum "Year 2000 Compliance" on August 7, 1998, and stated that the year 2000 computer problem is a critical national defense issue. He also stated that the Defense agencies will be responsible for ensuring that the list of mission-critical systems under their respective purview is accurately reported in the DoD year 2000 database effective October 1, 1998. Defense agencies must report and explain each

change in mission-critical designation to the Offices of the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) within 1 month of the change.

The Deputy Secretary of Defense issued the memorandum "Year 2000 (Y2K) Verification of National Security Capabilities" on August 24, 1998. The memorandum states that each of the Directors of the Defense Agencies must certify that they have tested the information technology and national security system year 2000 capabilities of their respective Component's systems in accordance with the DoD Management Plan.

Department of the Navy Year 2000 Action Plan. The Department of the Navy Year 2000 Action Plan (the Navy Action Plan) implements the DoD Management Plan. The Navy Action Plan was issued by the Department of the Navy Chief Information Officer, who is responsible for providing assistance and oversight to Navy organizations in resolving the year 2000 problem. The Navy Action Plan provides the Navy strategy and management approach to satisfying the year 2000 problem. The Navy Action Plan is the Navy approach to the year 2000 problem and allows Navy organizations to modify the approach to meet the needs of the organizations. The Navy Action Plan discusses each of the five phases identified in the DoD Management Plan and establishes Navy target completion dates for each phase. The five phases are discussed as follows.

- **Phase I - Awareness.** Familiarize Navy personnel of the possible year 2000 impact, define the year 2000 problem, decide the organization approach, and obtain high-level management support. Awareness is accomplished through organization memorandums, articles in Navy publications, e-mails, briefings, site visits, and other means as appropriate. Target completion of the awareness phase was December 1996.
- **Phase II - Assessment.** Determine the impact of the year 2000 on the organization's inventory including hardware, software, and firmware, and develop acceptable solutions; estimate resource requirements to accomplish year 2000 solutions; and develop contingency plans for the organization. Target completion of the assessment phase was June 1997.
- **Phase III - Renovation.** Develop the actual correction of the year 2000 problems for each system. Target completion of the renovation phase was June 1998.
- **Phase IV - Validation.** Test and verify the correctness of the renovated or replaced systems. All systems must undergo the validation process, including systems assessed as having no year 2000 impact. Target completion for the validation phase is October 1998.
- **Phase V - Implementation.** Systems are considered fully operational after being certified as year 2000 compliant. Target completion date is December 1998.

Naval Research Laboratory. The Naval Research Laboratory (NRL) is the Department of the Navy's corporate laboratory and is the principal in-house component in the Office of Naval Research's effort to meet its science and technology responsibilities. NRL conducts broad-based scientific research and advanced technological developments directed toward maritime applications of materials, techniques, equipment, and systems. The NRL is conducting research in areas including computer science and artificial intelligence, electronic warfare, information technology, space systems and technology, and surveillance and sensor technology.

Audit Objectives

Our primary audit objective was to determine whether NRL is adequately preparing its information technology systems to resolve date-processing issues for the year 2000 computing problem. Specifically, the audit determined whether NRL complied with the Navy Action Plan. Appendix A describes the audit scope and methodology and the prior audit coverage.

Status of the Naval Research Laboratory Year 2000 Program

The Naval Research Laboratory (NRL) had not developed a comprehensive year 2000 activity plan, developed a complete inventory of information technology systems, examined ongoing research efforts for a potential year 2000 impact, and modify contracts to ensure receipt of year 2000 compliant products. Those conditions existed because NRL did not fully comply with the Navy year 2000 guidance. As a result, NRL could not yet ensure that information technology systems and ongoing research efforts will not have year 2000 date-processing problems.

Awareness

NRL did not complete the awareness phase as required in the Navy Action Plan. The Navy Action Plan required Navy organizations to complete the awareness phase by December 1, 1996. The intent of the awareness phase is to make Navy organization personnel aware of year 2000 concerns, to demonstrate upper-level management support in identifying the potential for exposure to year 2000 problems at individual Navy organizations, and to require the development of an individual Navy activity plan. NRL had not accomplished the following two key elements of the Navy Action Plan: personnel notification and preparation of the activity plan.

Personnel Notification. Year 2000 officials at NRL did not inform personnel of year 2000 issues through organization memorandums, articles in Navy publications, e-mails, briefings, site visits, or by any other means. NRL officials plan to make organization personnel aware of the year 2000 problem when solutions to fix year 2000 problems are put in place.

To accomplish organization-wide year 2000 compliance, the NRL officials must make personnel aware of year 2000 initiatives before they can make solutions. Alerting organization personnel of the year 2000 problem and showing support from upper management in identifying and resolving any potential problems are important in the awareness phase. With proper notification, organization personnel can become part of the identification and solution process and can assist in identifying mission-support systems that are not year 2000 compliant.

Activity Plan. NRL officials had not prepared an NRL activity plan that identifies the approach in identifying and resolving the potential year 2000 problem. The activity plan is required to encompass all functional elements of NRL, to identify year 2000 points of contact assigned to areas of NRL, to provide guidance to inventorying systems, to provide checklists on determining whether systems are year 2000 compliant, to provide test plans that ensure that systems are year 2000 compliant, to include cost plans associated with making systems year 2000 compliant, to identify reporting requirements, to establish contingency plans, and to require the identification of system interfaces. The

NRL activity plan, which was in development during the audit, included only the research elements of NRL and excluded business and infrastructure functional areas of NRL. NRL did not develop an activity plan because NRL was not following guidance issued in the Navy Action Plan. NRL officials stated that the Navy Action Plan allows for flexibility and allows Navy organizations to adapt their own plan to fit their organizational needs. However, without the timely development of the activity plan and the inclusion of all functional areas of NRL, NRL did not have a corporate approach in identifying, assessing, and resolving potential year 2000 problems.

Assessment

The Navy Action Plan states that during the assessment phase, the organization must determine the impact of the year 2000 on the organization's activities. The Navy Action Plan requires the assessment phase to include a complete inventory of all hardware, software, and firmware for technical, business, and infrastructure areas including the identification of all internal and external system interfaces; to begin the development of a year 2000 contingency plan; to develop test plans; and to identify costs associated with resolving year 2000 problems. Also, NRL did not require assessments of current research programs for a potential year 2000 impact. The Navy Action Plan recommended that organizations complete the assessment phase as of June 30, 1997.

Inventory. NRL did not develop a complete inventory of hardware, software, and firmware systems as required by the Navy Action Plan. The inventory developed by NRL officials in response to the Navy Action Plan excluded the high-performance computing systems, all NRL software, the systems in the NRL local network, and all information technology purchases made through purchase orders and credit cards. The NRL inventory did appear to include all business hardware and software systems as well as NRL infrastructure systems. The NRL year 2000 official stated that the officials did not intend to develop a complete inventory because NRL acquires only commercial hardware and software that is already year 2000 compliant, only a small amount of technical software is developed by NRL personnel, and the software developed is not date-dependent. The NRL year 2000 official believes that the risk of experiencing year 2000 problems is minimal, and the costs associated with conducting a complete inventory were not warranted. The NRL year 2000 official based his belief about limited year 2000 risk on his knowledge of all the technical information technology systems at the laboratory.

Contingency Plan. The NRL year 2000 official did not initiate preparation of a contingency plan because he believes that NRL does not have a year 2000 problem. The official believes that NRL is fully capable of controlling a year 2000 situation without a formal plan. Also, the NRL year 2000 official believed that developing a contingency plan during the assessment phase as required by the Navy Action Plan was premature. However, considering the unavoidable and quickly approaching century changes, contingency planning becomes even more critical for those systems not assessed for the year 2000 impact especially when a comprehensive inventory has not been developed.

Test Plan. NRL has not developed a test plan, as required by the Navy Action Plan, for confirming year 2000 problem corrections. The Navy Action Plan states that a test plan should describe the test methodology, test phases, processes, requirements, and schedules. The NRL year 2000 official stated that two mission-essential systems were identified as having a year 2000 problem, and those systems are being corrected by contractors. NRL plans to perform a validation on those corrections; however, NRL had not developed a test plan at the time of this review, although contractor corrections were planned for completion by the summer of 1998. Also, NRL officials stated that they are not planning on testing other commercially acquired hardware and software systems at NRL because vendor statements of systems provided indicate that the vendor systems are year 2000 compliant. The Navy Action Plan recommends testing of systems to confirm year 2000 compliance. Examination of vendor statements shows that they recommend that organizations still conduct testing for year 2000 compliance because of potential unique characteristics at each user.

Cost Plan. The NRL did not develop a cost plan for expenditures related to year 2000 problems as required by the Navy Action Plan. The NRL year 2000 official stated that if noncompliant systems exist within NRL, those noncompliant systems would be replaced as normal information technology upgrades are made. The associated cost is considered normal maintenance costs and, therefore, additional year 2000 cost is considered irrelevant.

Assessment of Current Research Programs. NRL did not assess the potential year 2000 impact on ongoing research programs including potential system interfaces or the systems that the research programs may be applied to. NRL conducts research and development programs in the collection, transmission, and processing of information to provide a basis for improving the conduct of military operations. NRL management officials stated that research and development programs were not examined by program managers or engineers because NRL managers believe that none of the programs are date-dependent and, therefore, will have no year 2000 impact.

Contracting

The Acting Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) issued a policy memorandum to the Secretaries of the Military Departments and the Directors of the Defense agencies on "Acquisition of Year 2000 Compliant Information Technology (IT) and Bringing Existing IT Into Compliance," December 18, 1997. The memorandum requires the review of information technology contracts and other acquisition instruments to determine whether modifications to the contracts are necessary. The memorandum states that orders for information technology shall not be placed on a contract or other acquisition instrument unless the information technology purchase is year 2000 compliant.

NRL did not review information technology contracts as required by the Acting Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) memorandum and did not include the year 2000 compliance clause in all contracts awarded after December 18, 1997. NRL did begin to include

Status of the Naval Research Laboratory Year 2000 Program

the year 2000 clause in its information technology laboratory-wide contracts in April 1998. However, NRL made an information technology purchase of \$135,000 for which the NRL order did not contain the year 2000 requirement. In addition, NRL personnel used NRL credit cards and purchase orders to acquire information technology equipment and software, and the purchases did not contain the required year 2000 compliance provision. NRL contracting officials stated that they did not include the year 2000 compliance statement in the information technology contracts because the next higher command did not notify them of the requirement until April 1998.

NRL should review all purchases of undelivered information technology that were awarded before April 1998, determine whether the information technology products are required to be year 2000 compliant, and modify contracts accordingly with appropriate year 2000 compliance language.

Conclusion

The NRL officials stated that Navy organizations are allowed flexibility in using the Navy Action Plan to meet individual needs of the organization, and are not required to follow the Navy Action Plan. As a result, NRL chose not to follow the process for identifying year 2000 impact as recommended in the Navy Action Plan. In addition, the Commander, NRL, stated that he was satisfied with the approach that the NRL year 2000 officials are taking, that he would certify that systems used at the NRL, and that their interfaces will not be affected by transitioning to the year 2000. However, if NRL does not take actions outlined in this report, NRL cannot adequately identify and minimize potential year 2000 problems.

Recommendations and Management Comments

We recommend that the Commander, Naval Research Laboratory:

- 1. Develop a Naval Research Laboratory activity plan to include all areas of the laboratory based on the Department of the Navy Year 2000 Action Plan guidance.**

Management Comments. The Office of the Assistant Secretary of the Navy (Research, Development and Acquisition) concurred, stating that NRL has now developed a year 2000 activity plan.

- 2. Develop a complete inventory list of all Naval Research Laboratory hardware, software, and firmware, including purchases with credit cards and delivery orders.**

Management Comments. The Office of the Assistant Secretary of the Navy (Research, Development and Acquisition) concurred, stating that NRL inventory has a planned completion date of September 30, 1998.

3. Develop test, contingency, and cost plans as required by the Department of the Navy Year 2000 Action Plan guidance.

Management Comments. The Office of the Assistant Secretary of the Navy (Research, Development and Acquisition) concurred, stating that NRL is in the process of developing test, contingency, and cost plans, with a planned completion date of October 30, 1998.

4. Review all information technology research efforts to determine whether the research has a potential year 2000 impact and initiate the necessary corrective action. The review should include any planned system interfaces necessary for the information technology research effort.

Management Comments. The Office of the Assistant Secretary of the Navy (Research, Development and Acquisition) concurred, stating that NRL will assess all ongoing research efforts for year 2000 compliance. Planned completion of the research assessment is January 1999.

5. Review all existing contracts or other acquisition instruments for information technology and modify contracts for the year 2000 compliance requirement, where appropriate.

Management Comments. The Office of the Assistant Secretary of the Navy (Research, Development and Acquisition) concurred, stating that NRL is currently reviewing applicable contracts.

Part II - Additional Information

Appendix A. Audit Process

This is one in a series of reports being issued by the Inspector General, DoD, in accordance with an informal partnership with the Chief Information Officer, DoD, to monitor DoD efforts to address the year 2000 computing challenge. For a listing of audit projects addressing this issue, see the year 2000 webpage on IGnet at < <http://www.ignet.gov> > .

Scope

Work Performed. We reviewed and evaluated the progress of NRL in resolving the year 2000 computing issue. We evaluated the year 2000 efforts of NRL; compared the actions with the Navy Action Plan; conducted discussions with technical, business, and contracting officials; and evaluated year 2000 documentation where available.

DoD-Wide Corporate-Level Government Performance and Results Act Goals. In response to the Government Performance and Results Act, DoD has established 6 DoD-wide corporate-level performance objectives and 14 goals for meeting those objectives. This report pertains to achievement of the following objective and goal:

- **Objective:** Prepare now for the uncertain future.
- **Goal:** Pursue a focused modernization effort that maintains U.S. qualitative superiority in key warfighting capabilities. (DoD-3)

DoD Functional Area Reform Goals. Most major DoD functional areas have also established performance improvement reform objectives and goals. This report pertains to achievement for the following functional area objective and goal:

Information Technology Management Functional Area.

- **Objective:** Provide service that satisfies customer information needs.
- **Goal:** Upgrade technology base. (ITM-2.3)

General Accounting Office High-Risk Area. In its identification of risk areas, the General Accounting Office has specifically designated risk in resolution of the year 2000 problem as high. This report provides coverage of that problem and of the overall Information Management and Technology high-risk area.

Methodology

Audit Type, Dates, and Standards. We performed this program audit during May 1998, in accordance with auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD. We did not rely on computer-processed data or statistical sampling procedures to develop conclusions on this audit.

Contacts During the Audit. We visited or contacted individuals and organizations within DoD. Further details are available on request.

Management Control Program. We did not review the management control program for this audit because the Secretary of Defense Letter of Assurance for FY 1997 recognizes the year 2000 issue as a material management control weakness area.

Prior Audit Coverage

The General Accounting Office and the Inspector General, DoD, have conducted multiple reviews related to year 2000 issues. General Accounting Office reports can be accessed over the Internet at <http://www.gao.gov>. Inspector General, DoD, reports can be accessed over the Internet at <http://www.dodig.osd.mil>.

Appendix B. Report Distribution

Office of the Secretary of Defense

Under Secretary of Defense for Acquisition and Technology
 Director, Defense Procurement
 Director, Defense Logistics Studies Information Exchange
Under Secretary of Defense (Comptroller)
 Deputy Chief Financial Officer
 Deputy Comptroller (Program/Budget)
Assistant Secretary of Defense (Command, Control, Communications, and Intelligence)
 DoD Year 2000 Project Officer
Assistant Secretary of Defense (Public Affairs)

Department of the Army

Chief Information Officer, Army
Inspector General, Department of the Army
Auditor General, Department of the Army

Department of the Navy

Assistant Secretary of the Navy (Financial Management and Comptroller)
Auditor General, Department of the Navy
Commander, Office of Naval Research
Commander, Naval Research Laboratory
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Inspector General, National Imagery and Mapping Agency
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Office of Management and Budget
Office of Information and Regulatory Affairs

Technical Information Center, National Security and International Affairs Division,
General Accounting Office
Director, Defense Information and Financial Management Systems, Accounting and
Information Management Division, General Accounting Office

Chairman and ranking minority member of each of the following congressional
committees and subcommittees:

Senate Committee on Appropriations
Senate Subcommittee on Defense, Committee on Appropriations
Senate Committee on Armed Services
Senate Committee on Governmental Affairs
Senate Special Committee on the Year 2000 Technology Problem
House Committee on Appropriations
House Subcommittee on National Security, Committee on Appropriations
House Committee on Government Reform and Oversight
House Subcommittee on Government Management, Information, and Technology,
Committee on Government Reform and Oversight
House Subcommittee on National Security, International Affairs, and Criminal
Justice, Committee on Government Reform and Oversight
House Committee on National Security

Part III - Management Comments

Assistant Secretary of the Navy (Research, Development and Acquisition) Comments



THE ASSISTANT SECRETARY OF THE NAVY
(Research, Development and Acquisition)
WASHINGTON, D.C. 20350-1000

AUG 2 | 1998

MEMORANDUM FOR THE DEPARTMENT OF DEFENSE ASSISTANT
INSPECTOR GENERAL FOR AUDITING

Subj: DRAFT REPORT ON THE AUDIT OF NAVAL RESEARCH LABORATORY
PREPARATION FOR YEAR 2000 (PROJECT NO. 8AB-0030.01)

Ref: (a) DODIG Memo of 21 July 98


Encl: (1) Department of the Navy Response to Draft Audit Report

I am responding to the draft audit report forwarded by reference (a) concerning draft report on the audit of Naval Research Laboratory preparation for Year 2000 (Project No. 8AB-0030.01).

One of my highest priorities in the Department of the Navy is to ensure no mission critical system failures occur due to Year 2000 (Y2K) related problems. The impact of the millennium date change on the Department's many information technology systems will be determined largely by the attention we devote to solving the Year 2000 (Y2K) processing problem. To address this issue, my office provided guidance which outlines a centralized management/ decentralized execution policy. The Department's Y2K progress is reported to me weekly by system owners during regularly scheduled briefings. These reports examine Echelon II Commands for proper allocation of resources, for progress against DON and DoD mandated milestones, for contingency plans, for responsibility assignment and identification of system interfaces, for required Memoranda of Agreement, and for use of the Department of the Navy Y2K Database.

The Department of the Navy response is provided at enclosure (1). We concur with the finding and recommendations in the draft report. The Commanding Officer of Naval Research Laboratory takes its Y2K responsibilities seriously and has taken appropriate steps to ensure that the conduct of the Laboratory's mission will not be adversely affected by Y2K induced failures.

Your findings and recommendations have been helpful in identifying necessary changes in our approach to solving this very important challenge. My point of contact is CAPT Clifford Szafran, (703) 602-6882.


Dr. Ann Miller

Copy To:
CMC
CNO
UNSECNAV
ASN(RD&A)
Naval Inspector General
Inspector General Marine Corps
Naval Audit Service
USMC CIO
USN Y2K Project Office
NAVINSGEN(02)
Office of Financial Operations (FMO-31)
ONR
Naval Research Laboratory

**Assistant Secretary of the Navy (Research, Development and Acquisition)
Comments**

Department of the Navy Response

to

DOD Draft Report of July 21, 1998

on

Naval Research Laboratory Preparation for Year 2000
(Project No. 8AB-0030.01)

PART I - AUDIT RESULTS

STATUS OF THE NAVAL RESEARCH LABORATORY YEAR 2000 PROGRAM

FINDING:

The Naval Research Laboratory (NRL) did not develop a comprehensive year 2000 activity plan, develop a complete inventory of information technology systems, examine ongoing research efforts for a potential year 2000 impact, and modify contracts to ensure receipt of year 2000 compliant systems. Those conditions exist because NRL did not fully comply with the Navy year 2000 guidance. As a result, NRL cannot ensure that information technology systems and ongoing research efforts will not have year 2000 date-processing problems.

DON Response: While the Department of the Navy Year 2000 Action Plan was used as the basis for assessing NRL Y2K compliance, the plan outlines responsibilities and milestones and provides guidelines for Year 2000 activities to ensure that no DON mission-critical system fails due to Year 2000 problems. However, the recommendations in the action plan are high level in nature and are to be considered by each DON project team as guidance. Approaching the problem in this fashion ensures a decentralized effort, allowing each organization to modify the DON 'corporate approach' to meet its needs. The management strategy section of the plan allows Department of the Navy (DON) components the flexibility to implement solutions as deemed appropriate while benefiting from best practices in a coordinated effort.

In response to DON Y2K tasking, NRL categorized its information technology systems as DON mission-critical, NRL mission-critical, NRL mission-support, or non-mission critical.

Systems categorized as mission-critical or mission-support are being handled with the highest priority and in close adherence with DON policy. For non mission-critical systems, NRL is making use of the flexibility provided within the DON Action Plan to approach the Y2K issue in the most cost-effective manner consistent with meeting critical objectives. Some aspects of the finding specifically relate to NRL exercising this flexibility for non mission-critical systems.

Page 5, Awareness, Personnel Notification: Year 2000 officials at NRL did not inform personnel of year 2000 issues through organization memorandums, articles in Navy publications, e-mails, briefings, site visits, or by any other means.

DON Response: Concur. Personnel notification was not completed by 1 December 1996. However, NRL staff have been routinely provided with all DOD and DON messages and other official announcements of Y2K problems. The press, trade publications, and other media have been very effective in providing insight into Y2K concerns. NRL officials advised the auditors that NRL was preparing a web site, all-hands publications, articles for the Laboratory newspaper and other means of promulgating information, requirements and solutions. Since the audit, the NRL Y2K web site has been released for general use and an all-hands publication, Desktop, distributed Y2K information. The NRL Commanding Officer supports this and other efforts through his "Captain's Corner" on the NRL main website. Additional publications and events are planned throughout the year. The nature of the support, scientific, and engineering workforce of NRL, with its high level of information technology awareness, should permit significant flexibility in implementing Y2K awareness and solutions.

Page 5, Activity Plan: NRL officials have not prepared an NRL activity plan that identifies the approach in identifying and resolving the potential year 2000 problem.

DON Response: Concur. NRL's activity plan was in progress when the auditors visited NRL. Components of this activity plan were in draft or being executed as three separate elements addressing scientific, business, and infrastructure areas. A consolidated activity plan has since been developed and is being reviewed. Assessment and renovation phases for the most critical components of NRL infrastructure addressed in this plan were already well underway at the time of the audit. That process is continuing; however, some elements cannot be completed until vendor-supplied components are available. This

Assistant Secretary of the Navy (Research, Development and Acquisition) Comments

is not expected to significantly impact subsequent phases. Validation and implementation phases for DON mission-critical, NRL mission-critical and NRL mission-support information technology systems should be completed in accordance with DON target schedules.

Page 6, Assessment, Inventory: NRL did not develop a complete inventory of hardware, software, and firmware systems as required by the Navy Action Plan.

DON Response: Concur. NRL has a complete inventory for all mission-critical and mission-support systems at the corporate level. These mission critical and mission support systems are reported in the DON Y2K Database. An inventory of hardware and software associated with these systems was almost complete at the time of the audit. The inventory of hardware and software for these mission-critical and mission-support systems will be available by September 30, 1998. For mission-critical and mission-support systems, NRL is developing test, contingency and cost plans as required by Navy guidance and recommended by the audit report.

IT hardware and software that is not part of the NRL mission critical and mission support systems will be reported as infrastructure devices in accordance with Chapter 14 of the DON Y2K Action Plan. This inventory is 97% complete and will be reported to the DON Y2K Database by 30 September 1998. NRL is reviewing options to capture the remaining three percent of the infrastructure inventory.

Page 6, Contingency Plan: The NRL year 2000 official did not initiate preparation of a contingency plan because he believes that NRL does not have a year 2000 problem.

DON Response: Concur. NRL is developing contingency plans for mission-critical systems as required by Navy guidance.

Page 7, Test Plan: NRL has not developed a test plan, as required by the Navy Action Plan, for confirming year 2000 problem corrections.

Page 7, Cost Plan: NRL has not developed a cost plan for expenditures related to year 2000 problems as required by the Navy Action Plan.

DON Response: Concur. NRL is developing test and cost plans for mission-critical and mission-support systems as

required by Navy guidance. The plans will be completed by October 30, 1998.

Page 7: Assessment of Current Research Programs: NRL did not assess the potential year 2000 impact on ongoing research programs including potential system interfaces or the systems that the research programs may be applied to.

DON Response: Concur. NRL will assess all ongoing research efforts for Y2K compliance. This will be accomplished as part of the awareness program and through the program review process. The FY99 process begins in September 1998 for FY99 programs, and will be completed by early January 1999.

Page 7, Contracting: NRL did not review information technology contracts as required by the Acting Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) memorandum and did not include the year 2000 compliance clause in all contracts awarded after December 18, 1997.

DON Response: Concur. NRL has not yet reviewed all existing contracts for Y2K compliance. NRL is currently reviewing applicable existing contracts.

RECOMMENDATIONS FOR CORRECTIVE ACTION:

Recommendation 1. Commanding Officer, Naval Research Laboratory, develop a Naval Research Laboratory activity plan to include all areas of the laboratory based on the Department of Navy Year 2000 Action Plan guidance.

DON Response: Concur. NRL has developed a Y2K activity plan.

Recommendation 2. Commanding Officer, Naval Research Laboratory, develop a complete inventory list of all Naval Research Laboratory hardware, software, and firmware, including purchases with credit cards and delivery orders.

DON Response: Concur. NRL has a complete inventory for all mission-critical and mission-support systems at the corporate level. These mission critical and mission support systems are reported in the DON Y2K Database. An inventory of hardware and software associated with these systems was almost complete at the time of the audit. The inventory of hardware and software for these mission-critical and mission-support systems will be available by September 30, 1998. For mission-critical and

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mission-support systems, NRL is developing test, contingency and cost plans as required by Navy guidance and recommended by the audit report.

IT hardware and software that is not part of the NRL mission critical and mission support systems will be reported as infrastructure devices in accordance with Chapter 14 of the DON Y2K Action Plan. This inventory is 97% complete and will be reported to the DON Y2K Database by 30 September 1998. NRL is reviewing options to capture the remaining three percent of the infrastructure inventory.

Recommendation 3: Commanding Officer, Naval Research Laboratory, develop test, contingency, and cost plans as required by the Department of Navy Year 2000 Action Plan guidance.

DON Response: Concur. NRL is in the process of developing test, contingency and cost plans as required by Navy guidance. The plans will be completed by October 30, 1998.

Recommendation 4: Commanding Officer, Naval Research Laboratory, review all information technology research efforts to determine whether the research has a potential year 2000 impact and initiate the necessary corrective action. The review should include any planned system interfaces necessary for the information technology research effort.

DON Response: Concur. NRL will assess all ongoing research efforts for Y2K compliance. This action will be completed by January 1999.

Recommendation 5: Commanding Officer, Naval Research Laboratory, review all existing contracts or other acquisition instruments for information technology and modify contracts for the year 2000 compliance requirement, where appropriate.

DON Response: Concur. NRL is currently reviewing applicable existing contracts.

Audit Team Members

The Acquisition Management Directorate, Office of the Assistant Inspector General for Auditing, DoD, produced this report.

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